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Running head: OUTCOME VALENCE IN BARGAINING

Understanding the Influence of Outcome Valence in Bargaining:

A Study on Fairness Accessibility, Norms, and Behavior

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Abstract

In this study we investigate how outcome valence affects the importance of self-interest and fairness in ultimatum bargaining. In three experiments we systematically study the effect of outcome valence on fairness accessibility, norms, and behavior. Results on all three aspects show strong evidence for the hypothesis that fairness becomes more important and self-interest becomes less important in negative valence bargaining. Fairness accessibility was higher when bargaining involved negative payoffs than when it involved positive payoffs (Experiment 1), the fairness norm was stronger in negatively versus positively valenced bargaining when an identical unequal offer benefiting the allocators was evaluated (Experiment 2), and allocators allocated more to recipients in negative valence bargaining than in positive valence bargaining (Experiment 3). We relate our findings to insights derived from the do-no-harm principle.

Keywords: outcome valence, bargaining, do-no-harm, norms, fairness accessibility

Understanding the Influence of Outcome Valence in Bargaining:

A Study on Fairness Accessibility, Norms, and Behavior

A motivated bargaining approach argues that in order to understand negotiation behavior we should study the underlying motives of the negotiator (e.g. De Dreu, Beersma, Steinel, & van Kleef, 2007; De Dreu & Carnevale, 2003). One of the main motives in allocation decisions and negotiations is self-interest. People are motivated to pursue their own interest and maximize own outcomes. However, research reveals that people may also be motivated by a concern for others (see e.g., De Dreu & Steinel, 2006; Komorita & Parks, 1995; Van Dijk, De Cremer, & Handgraaf, 2004; Van Dijk & Tenbrunsel, 2005), and that they may strive for fair allocations of the resources (see e.g., the social utility model, Blount, 1995; Loewenstein, Thompson, & Bazerman, 1989; Van Dijk & Vermunt, 2000). Past research on motivated bargaining has mostly held valence constant, focusing primarily on bargaining situations in which positively valenced outcomes were allocated (e.g. gains) and neglecting bargaining situations in which negatively valenced outcomes were allocated (e.g. costs). To extend previous theorizing, we investigate the impact of valence on self-interest versus fairness motives in allocation decisions. Our theoretical model is inspired by the do-no-harm principle (Baron, 1995; 1996), which suggests that people are reluctant to harm another person to benefit themselves. Based on this principle, we argue that in bargaining about negative outcomes, fairness may become more and self-interest less important than in bargaining about positive outcomes.

Positive and Negative Payoffs in Bargaining

In this paper, we investigate the impact that outcome valence has on bargaining. The paradigm we use to study the influence of valence is the Ultimatum Bargaining Game (UBG) (Güth, Schmittberger, & Schwarze, 1982). In this game there are two players, the allocator and the recipient. The allocator makes an offer on how to divide a given resource, and the recipient can either accept or reject this offer. Upon acceptance, the resource is divided according to the offer. Upon rejection, both players receive nothing. With its clear structure the UBG is very well suited to study motivated bargaining behavior (e.g. Handgraaf, Van Dijk, & De Cremer, 2003; Pillutla & Murnighan, 2003; Van Dijk & Tenbrunsel, 2005). If self-interest is dominant, allocators should offer the minimal positive amount to the recipient, which the recipient should accept; fairness motives, however, may lead allocators to make more generous offers in fear that recipients may reject low offers.

With its simplicity the UBG provides us with an elegant way to study the influence of valence in bargaining. To compare the bargaining process of positively and negatively valenced outcomes, we compared the traditional, positive valence UBG with a negative valence UBG. In the negative valence UBG both the allocator and the recipient are initially endowed with 100 Euro. The allocator has to make an offer on how to divide a loss of 100 Euro. If the recipient accepts, their outcome will be 100 Euro minus the amount he/she had to pay according to the offer. If the recipient rejects the offer, both players lose their initial 100 Euro (cf. Buchan, Croson, Johnson, & Wu, 2005). Note that the payoff structure is identical to the traditional positive valence UBG. The maximum outcome is 100 Euro (e.g. when the allocator does not pay anything and the recipient

everything), and the minimal outcome is 0 Euro (e.g. when the allocator pays everything, or upon rejection).

The influence of valence on self-interest and fairness may be understood from two different perspectives. The first perspective, based on the do-no-harm principle (Baron, 1995; 1996; Van Beest et al., 2005), suggests that bargaining about negatively valenced payoffs makes fairness a more important motivator than bargaining about positively valenced payoffs. As explained before, the do-no-harm principle states that people are reluctant to benefit themselves if this implies that they harm the other party (Baron, 1995; 1996). As inflicting a loss might be considered to be more harmful than withholding a gain, it can be argued that in comparison to the positively valenced UBG, bargainers in the negatively valenced UBG become less willing to favor themselves over the recipient.

Several studies support this reasoning. For example, research on the use of the equality rule in social decision-making showed a stronger preference for equality in negative valence allocations (Törnblom & Jonsson, 1985; Van Dijk, Engelen, Van Leeuwen, Monden, & Sluiter, 1999). Moreover, and in contrast to the positive resource domain, people in a negative resource domain showed no ingroup bias or maximizing difference strategies (Blanz, Mummendey, & Otten, 1997; Mummendey et al., 1992; Mummendey & Otten, 1998; Otten & Mummendey, 1999). We add to these findings by examining the impact of valence on self-interested and fairness motives in a dyadic bargaining context.

Research on this subject that is more closely related to the context of bargaining is the work of Van Beest et al. (2005) on coalition formation. Van Beest et al. studied coalition bargaining in situations where negotiators could benefit themselves by either

maximizing a gain or by minimizing a loss. Maximizing own gain would imply a decrease in the gain for another party, whereas minimizing own loss would imply an increase in the loss for another party. Van Beest et al. showed that 1) participants were less willing to exclude another party to minimize their own loss than they were willing to exclude to maximize their own gain (i.e. there were fewer small coalitions in the loss frame than in the gain frame), and 2) independent of whether a large or small coalition was formed and whether participants were in a loss or gain frame, resources were divided equally between coalition members. The results of Van Beest et al. suggested that people are less likely to harm another party *by exclusion* in a loss frame than in a gain frame rather than by allocating lower outcomes. We examine the impact of valence in a bargaining situation to specifically focus on self-interested versus fairness motives in a context which eliminates the possibility of exclusion. Our results suggest that people are less willing to divide a loss unequally benefiting themselves than to divide a gain unequally in a dyadic bargaining setting.

Prospect theory offers an alternative prediction for the impact of valence on motives, suggesting that in the domain of losses, people are more self-interested than in the domain of gains (Kahneman & Tversky, 1979; 1984). The first perspective is based on the finding that losses loom larger than gains (i.e., loss aversion). Simply put, people find it more unpleasant to lose 100 Euro than they find it pleasant to gain 100 Euro. As people are loss averse, one might argue that self-interest becomes more important in the loss domain as people are strongly motivated not to lose their money. The second perspective, which results in a congruent prediction, is based on the relation between valence and risky decision-making. In the domain of gains, people are risk averse where

as in the domain of gains, they are risk seeking (Kahneman & Tversky, 1979; 1984). Making a self-interested offer basically implies that the allocator takes a gamble and risks that the partner rejects the offer, whereas an equal split would seem a safe but less profitable offer. Along this line, it could also be argued that prospect theory would predict more self-interested bargaining behavior in a negative UBG than in a positive UBG. Research suggests that indeed people may become more self-interested in a loss domain (e.g. Schweitzer & DeChurch, 2001, Sondak, Neale, & Pinkley, 1995). For instance, in the context of a multi-issue negotiation De Dreu, Carnevale, Emans, and Van der Vliert (1995) showed that loss framed negotiators demanded more, and conceded less than negotiators in a gain frame.

Influence of valence on accessibility, norms, and behavior

In our investigation of valence on motivated bargaining, we draw on March (1994) and Messick's (1999) work on decision-making. They argue that to truly understand an individual's behavior, one must first determine how that individual conceptualizes the situation, with that conceptualization in turn driving the perceptions about norms and behavior. The current article provides a systematic investigation of all three of these aspects -- accessibility of cognitions, norms, and behavior -- to provide a comprehensive picture of the influence of outcome valence in a bargaining setting.

Cognitive Accessibility

The first aspect to consider in order to understand the impact of valence on the motives of self-interest and fairness is *cognitive accessibility*. Accessibility can be defined as the readiness with which cognitions and constructs can be activated in different (social) situations (Fazio, 1995; Higgins, 1996; Shen, 2004). People react

automatically on changes in situations, which may subsequently influence their perceptions and interpretations of following events (Bargh, 1997). Research on affective priming provides some insight into the role that valence might play in cognitive accessibility (e.g. Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, Sanbonmatsu, Powell, & Kardes, 1986). This research demonstrated that the time needed to classify positively and negatively valenced adjectives was influenced by the valence of the subliminal prime shown shortly before the target stimulus. For example, when participants were asked to classify the adjective 'disgust' in either a 'good' or 'bad' category, reaction time was shorter when participants were first exposed to a negative prime (e.g. mosquito) than when they were exposed to a positive prime (e.g. sun). These findings suggested that related concepts are automatically activated on the presentation of a word or situation (for reviews, see e.g. Fazio, 2001; Klauer & Musch, 2003).

Accessibility of cognitions has also been studied in more interpersonal settings. For instance, research on coalition bargaining (Van Beest, Van Dijk, De Dreu, & Wilke, 2005) and procedural fairness (Van Prooijen, Van den Bos, & Wilke, 2002) shows that the accessibility of the fairness concept differs depending on the social situation. For example, Van Prooijen et al. (2002) showed that status salience increases fairness accessibility. Although the focus of these studies was different than the focus of our current paper, combined they suggest that the accessibility of fairness may depend on situational aspects, like outcome valence.

Norms

Norms are a second important aspect in bargaining processes. Norms define what is appropriate behavior in social situations (Mannix, Neale, & Northcraft, 1995). These

norms help us to evaluate procedures and outcomes of negotiations, and may serve as guidance for how to behave in certain situations. In negotiation, for example, norms can help us to determine whether or not typical negotiation behavior is considered to be ethical or unethical (Anton, 1990; Aquino & Becker, 2005; Grover, 1993).

Norms are assumed to depend on the situation (Schwartz, 1968; March, 1994). The way in which a situation is conceptualized by the decision maker is argued to drive perceptions of the appropriateness norms (March, 1994; Messick, 1999). What is considered to be fair, for example, depends on the situational aspects prior and during a negotiation (e.g. Gamliel & Peer, 2006; Konow, 2003). This suggests that changing the presentation of a bargaining situation either in terms of positive or negative valence payoffs might influence the evoked norm.

Behavior

The third aspect which is crucial in studying the process of negotiations is *behavior* itself. Decisions of appropriateness (or schemas) drive norms and behavior (Messick, 1999). Different behaviors in the same situation might result because of different judgments about what is appropriate behavior. However, the existence of norms does not always mean that people also behave in accord with these norms (e.g. Harms & Skyrms, in press). Allocators might only care about norms because of self-presentation effects, wanting others to think they have obeyed the norm in order to maximize their own outcome. Alternatively, they might obey this norm because they genuinely care for it. As a result, it is important to examine behavior and norms independently.

Present Study

In this paper, we systematically investigate the influence of outcome valence on fairness versus self-interest motives in the bargaining process. In Experiment 1 we study whether fairness accessibility differs between the positive and negative UBG. We subsequently study the impact that outcome valence has on perceptions of fairness norms in Experiment 2. Finally, in Experiment 3 we investigate whether behavior differs in the positive and negative valence UBG, and whether adherence to the norm is instrumentally-based and motivated out of a desire to maximize own outcomes, or if it is driven out of a genuine concern for fairness.

Experiment 1: Fairness Accessibility

To study the influence of outcome valence on the cognitive accessibility of the fairness concept, we presented observers of a bargaining situation (positive vs. negative valence UBG) with an identical unequal offer favoring the allocator (i.e. a 70-30 offer). Equality is often used in interdependent allocation situations (e.g. Allison & Messick, 1990; Konow, 2003), because of its simplicity, effectiveness, and justifiability (Messick, 1993). People generally consider an equal division to be fair. A deviation from this equal split, as a 70-30 offer clearly is, can therefore be seen as a deviation from fairness (Pillutla & Murnighan, 1995) or in other words as self-interested behavior. Previous research has shown that unequal offers consisting of less than 20% are most often rejected by recipients (Camerer & Thaler, 1995; Thaler, 1988) and that even capuchin monkeys reject unequal outcomes (Brosnan & De Waal, 2003).

To measure fairness accessibility we used a word completion task which was introduced by Van Prooijen et al. (2002). In this task a number of uncompleted target

words can be completed into a fairness-related word or a non-fairness related word. Two alternative hypotheses were formed based on the two perspectives presented earlier. Our first hypothesis is based on the do-no-harm principle (Baron, 1995; 1996) which argues that people are reluctant to benefit themselves if this means they inflict a loss to another person. As people observe a situation in which the recipient is harmed (by inflicting a loss) it can also be hypothesized that an unequal offer benefiting the allocator would lead to *higher* elicitation of fairness-related concepts in the negative valence UBG than in the positive valence UBG.

The alternative hypothesis is inspired on Prospect Theory (Kahneman & Tversky, 1979; 1984). According to this theory, losses loom larger than gains and thus the presentation of a negative valence UBG might make one's own outcomes even more salient and fairness less salient than presenting a positive valence UBG. Consequently, this may lead to *lower* elicitation of fairness-related concepts in the negatively valenced UBG than in the positively valenced UBG.

Method

Design and participants. Participants were 9 male and 68 female students from Leiden University (mean age = 20.71, $SD = 2.57$). They were randomly assigned to the positive or negative valence UBG.

Procedure. Participants were told that they would participate in a study on bargaining and were seated in separate computer cubicles. All the instructions were presented on the computer-screen. First participants read a scenario in which Daan and Thomas were bargaining about 100 euros to gain [to pay]. The allocator, i.e. Daan, could make an offer. Participants in the positive valence condition read that upon acceptance

both would receive the money according to the offer. Upon rejection both Thomas and Daan would end up with zero outcomes. Participants in the negative valence condition learned that when Thomas accepts, both would have to pay the amount of Euro in agreement with this offer, leaving their eventual payoff to be the 100 Euro minus this payment. Upon rejection, both Daan and Thomas would lose their initial endowment and end up with nothing.

Next, participants were shown the unequal offer of Daan. In the positive valence condition, Daan's offer stated that he would get 70 Euro and Thomas 30 Euro. In the negative valence condition, Daan's offer stated that he would pay 30 Euro and Thomas would pay 70 Euro. Participants were then told that before they would continue with "study 1" they had to complete another task in "study 2". Participants then performed the word completion task (cf. Van Prooijen et al., 2002). They were presented with 20 uncompleted words. Six out of these 20 words were the target words. For example, one of the target words was the incomplete (Dutch) word "-nrecht", which can be completed to 'onrecht' (unjust), but for example also to 'aanrecht' (kitchen sink). Three target words were positive (translated to English: *respect*, *fair*, and *honest*), and three were negative words (*unequal*, *unjust* and *impolite*). For each participant we counted the number of fairness-related words the participant typed in.

To check our manipulation of valence we asked participants to indicate what best described the situation they had read about. Two answers were possible: "Thomas and Daan had to bargain about a gain of 100 Euro" and "Thomas and Daan initially owned 100 Euro each. They had to bargain about a loss of 100 Euro." Finally, participants were debriefed and paid for participation.

Results

Manipulation checks. The manipulation of valence was successful. All participants (100%) correctly indicated which bargaining situation (positive or negative) they had read.

Fairness accessibility. A t-test between the positive and negative valence UBG indicated a significant effect of valence, $t(75) = -2.29, p < .05$. Participants in the negative valence UBG typed in more fairness-related words ($M = 2.31, SD = 1.20$) than participants in the positive valence UBG ($M = 1.71, SD = 1.09$). To investigate whether the valence effect was not driven by either the positive or the negative words, we also tested the three positive words and the three negative words separately. Both t-tests indicated a significant effect of valence, respectively $t(75) = -2.30, p < .05, M_{pos} = .84, SD_{pos} = .86, M_{neg} = 1.31, SD_{neg} = .92$, and $t(75) = -2.22, p < .05, M_{pos} = .61, SD_{pos} = .60, M_{neg} = .97, SD_{neg} = .84$. The effect of valence on fairness accessibility could thus not be explained in terms of valence of the words.

Discussion

In the first step of investigating the influence of valence in a bargaining we found that the fairness construct was more accessible in the negative valence UBG than in the positive valence UBG. These results are consistent with the hypothesis based on the do-no-harm principle (Baron, 1995; 1996). When a concept like fairness is accessible, it does however not imply that fairness is also the norm, or that people also behave in a fair way. Racist schemata, for example, are accessible to almost all Caucasians, but such cognitions can be overridden through deliberative processing in order to behave according to the existing norm, which is not to be racist (DiMaggio, 1997). The next step

in our investigation was therefore to study norms (Experiment 2) and behavior (Experiment 3).

In addition to studying the effect of valence, we also used these experiments to study the effect of power. Research on ultimatum bargaining has shown that bargainers most often offer an (almost) equal split (e.g. Güth et al., 1982; Güth, Ockenfels, & Tietz, 1992). As others before us concluded, this preference for equality accords with the notion that equality or fairness is considered to be the norm (see e.g. Handgraaf et al., 2003). Later studies, however, showed that bargainers did not always behave according to this norm of equality when the consequences of a rejection were not as severe as in the traditional ultimatum game (Fellner & Güth, 2003; Suleiman, 1996; Van Dijk & Vermunt, 2000). For example, ultimatum behavior was studied in situations where power relations were manipulated; in the UBG, power is often used in terms of the recipient's influence on the final outcome of the bargaining, or in other words the allocator's dependency on the recipient's behavior. Fellner and Güth (2003) manipulated this dependency by introducing the factor λ which changes the payoffs of the players compared to the traditional UBG. After rejection of the offer, the allocators received their payoff multiplied by λ , while the recipients received their payoff suggested by the allocator multiplied by $1 - \lambda$. When λ is low, the recipients can reject an offer with a low cost to self. The cost for the allocators will be high. The allocator is thus highly dependent on the recipient's behavior. When λ is high, recipients cannot reject the offer easily, because it will cost them a lot, while allocators still receive most of the proposed share. Fellner and Güth (2003) found that being less dependent on the recipient's

behavior led to lower allocations to the recipient (i.e., more deviation from the equal split) than being highly dependent (see also Suleiman, 1996; Van Dijk et al., 2004).

The main interpretation of this dependency effect on bargaining behavior is that allocators are strategic in considering the consequences of rejection for their own outcomes. When dependency is high, the personal consequences of having their offer rejected are severe for allocators. To avoid rejection, allocators make high offers. When dependency is low, the personal consequences of having their offer rejected are low for allocators. As a result, allocators may be more willing to make low offers. Basically, this explanation rests on the assumption that people act as strategic maximizers (Camerer & Fehr, 2006; Camerer & Thaler, 1995). If bargainers would be less driven by self-interest in the case of negative outcomes, but rather by a concern for fairness, one would thus not expect a similar effect on offers in the negative domain. We investigate this proposition in Experiment 3. In Experiment 2, we first investigate how these factors affect norms.

Experiment 2: Norms

Similar to Experiment 1 we presented observers with an unequal (i.e. 70-30) offer benefiting the allocator in a positive or negative valence UBG. Observers were asked to evaluate this offer in terms of appropriateness. Based on the results of Experiment 1, we predicted that observing an unequal offer in the negative valence UBG would lead observers to evaluate this offer as less appropriate than a similar offer in the positive UBG.

In addition to valence, we also manipulated power. Our main interest in manipulating the impact of power was that we expected that it could affect bargaining behavior, which we investigate in Experiment 3. But to check whether it might impact on

norms, we also manipulated power, i.e. the dependency relation, in the current study. As we noted earlier, the effect of dependency on offers in bargaining is primarily explained in terms of self-interest (Camerer & Fehr, 2006; Camerer & Thaler, 1995). Self-interested bargainers may make higher offers when they are highly dependent upon the recipient than when they are less dependent. This explanation does not refer to whether or not low offers would be (in)appropriate. As such, the explanation does not yield a prediction of dependency on norms. Nevertheless we wanted to check for a possible effect, because if we would find an effect it would be useful information to interpret possible behavioral effects. A possible effect could, for example, emerge if allocators would be held to higher ethical norms when they are less dependent than when they are highly dependent on the recipient (cf. Tenbrunsel & Messick, 2001).

Method

Design and participants. A 2 (valence: positive vs. negative) x 2 (dependency: low vs. high) between-subjects factorial design was used to investigate the appropriateness of an unequal offer of 70-30. A total of 76 students of Leiden University (20 males and 55 females, one unknown; mean age of 20.33, $SD = 3.85$) participated voluntarily in this paper-and-pencil study. They were randomly assigned to one of the four conditions.

Procedure. Participants read a scenario in which two people, Daan and Thomas were involved in an ultimatum bargaining game. The manipulation of valence was similar to Experiment 1. In the positive valence condition Daan and Thomas bargained about a gain of 100 euro. In the negative valence condition Daan and Thomas initially owned 100 euro each and they bargained about how to pay a loss of 100 euro.

Subsequently, the manipulation of the allocator's dependency was introduced, i.e. Daan's dependency upon Thomas' behavior. In the high dependency condition the consequences of rejection were severe for Daan, but small for Thomas. In the low dependency condition it was the opposite with consequences small for Daan and severe for Thomas. More specifically, in the positive valence UBG, participants in the low dependency condition (i.e. $\lambda = 0.9$) were informed that if Daan's offer were rejected, Daan would still end up with 90% of his share according to the given offer and that Thomas would only end up with 10%. In the high dependency condition (i.e. $\lambda = 0.1$) participants learned that when Daan's offer would be rejected, Daan would only end up with 10% of his share according to the given offer, while Thomas would end up with 90%.

In the negative valence condition, participants learned that when Thomas accepted, he would have to pay the money in agreement with this offer, leaving his eventual payoff to be the 100 Euro minus this payment. Participants in the low dependency condition (i.e. $\lambda = 0.9$) learned that if Daan's offer were rejected, Daan would only lose 10% of the eventual payoff he would have earned had the offer been accepted instead, and that Thomas would lose 90%. However, in the high dependency condition (i.e. $\lambda = 0.1$) participants learned that when Daan's offer would be rejected, Daan would lose 90% of his eventual payoff after acceptance, while Thomas would lose 10%. Note that the payoff structures of the positive and negative valence UBG were identical.

Next, participants were shown the unequal offer of Daan, similar to Experiment 1. In the positive valence condition Daan's offer stated that he would get 70 Euro and

Thomas 30 Euro. In the negative valence condition Daan's offer was to pay 30 Euro himself and Thomas 70 Euro. Subsequently, we asked participants to what extent they evaluated the offer as very immoral (1) - absolutely not immoral (7), very unethical (1) - very ethical (7), and very inappropriate (1) - absolutely not inappropriate (7). These questions were combined into a fairness norm scale ($\alpha = .81$) ranging from 1 to 7 with higher scores indicating a weaker fairness norm.

To check our manipulation of valence we asked participants to indicate what best described the situation they had read about. Two answers were possible: "Thomas and Daan had to bargain about a gain of 100 Euro" and "Thomas and Daan initially owned 100 euro each. They had to bargain about a loss of 100 Euro." To check the manipulation of dependency we asked participants how powerful Thomas was (1 = very powerful; 7 = absolutely not powerful). Participants were then debriefed and thanked for participation.

Results

Manipulation checks. The manipulation of valence was successful. Ninety-one percent of the participants correctly indicated whether they read about a negative or a positive bargaining situation. This did not differ across conditions. Exclusion of the participants who did not answer these questions correctly did not yield different results on the main dependent variable and were therefore included in the rest of the analyses.

The manipulation of dependency was also successful. A 2 (valence: positive vs. negative) x 2 (dependency: low vs. high) ANOVA revealed only a main effect of dependency, $F(1,71) = 10.51, p < .005, \eta^2 = .13$. Participants perceived Thomas to be more powerful in the high dependency condition ($M = 3.49, SD = 1.84$) than in the low dependency condition ($M = 4.92, SD = 1.98$).

Norms of fairness. A 2 (valence: positive vs. negative) x 2 (dependency: low vs. high) ANOVA on the fairness norm scale yielded only a significant valence effect, $F(1,72) = 11.48, p < .001, \eta^2 = .14$. Participants in the negative valence UBG evaluated the unequal offer of 70-30 as less appropriate ($M = 4.72, SD = 1.13$) than participants in the positive valence UBG did ($M = 5.56, SD = .99$). The dependency effect and the interaction effect were not significant ($F_s < 1, ns$).

Discussion

Experiment 2 showed that compared to the positive valence UBG a violation of equality is considered more inappropriate in the negative valence UBG. This extends the results of Experiment 1 as it shows that the norm of fairness is stronger in the negatively valenced UBG than in the positively valenced UBG. The results of Experiment 1 and 2 both support the do-no-harm reasoning that inflicting a loss is considered to be more harmful than withholding a gain. It should be noted, however, that in these experiments the participants' outcomes were not at stake, which may not have been conducive to finding support for the prospect explanation (which is more related to self-interest). In Experiment 3, we study the effect of valence on bargaining behavior, i.e., in a situation in which self-interest can come into play, and therefore more directly test the do-no-harm rationale vs. the prospect theory rationale.

Experiment 3: Behavior and Underlying Motives

In Experiment 3 we investigated the influence of outcome valence and dependency on allocator's behavior. What do allocators offer to recipients in the positive and negative valence UBG? And what role does dependency play here? As we already noted, previous research showed that allocators in the traditional, positive UBG made

lower offers to the recipient when they were less dependent upon the recipient's behavior than when they were highly dependent (e.g. Fellner & Güth, 2003; Suleiman, 1996). As argued above, the dominant explanation for this finding is not that it would be related to feelings of appropriateness. Rather, the main explanation is that the consequences of having your offer rejected are lower in case of low dependency than in the case of high dependency. Thus, the main interpretation of this behavioral effect is that it occurs for strategic reasons.

Because these documented findings were obtained in situations where people bargain over positive outcomes, we expected to replicate these findings in the positive valence UBG. However, we expected not to replicate this dependency effect in the negative valence UBG as we expect fairness concerns to mitigate concerns for self interest. In line with the results on fairness accessibility (Experiment 1) and norms (Experiment 2), it can be reasoned that allocators are more motivated by fairness in the negative valence UBG than in the positive valence UBG. If people are truly more concerned about fairness in the negative valence UBG, then allocators in the negatively valenced UBG should offer an (almost) equal split even when they are less dependent upon the recipient's behavior. If this is the case, we would expect an interaction between valence and dependency such that one would find the previously demonstrated dependency effect in the positive valence UBG, but not or to a lesser extent in the negative valence UBG.

To complete our study on the influence of valence on the bargaining process we also related behavior to the underlying motives. We therefore not only used a manipulation of dependency, but also asked participants about their concern for their own

outcome and the concern for the others outcome. In line with the findings on fairness accessibility (Experiment 1) and norms (Experiment 2) it can be argued that fairness motivates allocators more and self-interest motivates allocators less in the negatively valenced UBG than in the positively valenced UBG. Moreover, if these motives underlie the effect of valence on bargaining behavior we should find a mediation effect.

Method

Design and participants. A 2 (valence: positive vs. negative) x 2 (dependency: low vs. high) between-subjects factorial design was used to investigate the offers made by the allocators. The number of chips allocated to the recipients and the motives of self-interest and fairness were the main dependent variables of interest. The participants were 100 students of Leiden University (27 males and 73 females, mean age of 20.8 years).

Procedure. Participants were told that they would participate in a study on bargaining and were seated in separate computer cubicles. All the instructions were presented on the computer-screen. The experiment lasted about half an hour. Participants learned that they would remain anonymous to their opponent during the whole game. Participants were told that they had been randomly assigned to the role of allocator (player A), but in fact, all participants were assigned to the role of allocator.

First, the valence of the UBG was manipulated in a similar vein as in both previous experiments. The only difference was that people had to bargain about 100 valuable chips instead of 100 Euro. Each chip was worth 8 cents. Participants in the positive UBG were informed that there were 100 chips that had to be divided between the two players and that they had to make an offer to B. Participants in the negative UBG were informed that both players had 100 chips. Together they had to pay 100 chips and

the participants had to make an offer how to divide this payment. All participants believed that their payoff would be contingent on their subsequent behavior.

Subsequently, the manipulation of dependency was induced in a similar vein as in Experiment 2. In the high dependency condition, the recipient could reject the offer at low cost to self (still 90% left) and a high cost for the opponent (only 10% left). In the low dependency condition, the participant is less dependent upon the recipient's behavior, as the recipient could reject the offer only at a high self cost (10% left) and low cost for the participant (still 90%). To assess the effectiveness of the manipulation, we asked five questions about the influence of the recipient of the final payoff of the offer (e.g. "Do you feel dependent on B's behavior?" and "How powerful is Person B?"). We combined these questions into a dependency scale (ranging from 1 to 7) with higher scores indicating a higher dependency on B's behavior ($\alpha = .88$).

At that point participants made the offer. Next, we asked participants about the importance of self-interest and fairness motives. To measure self-interest two questions were asked, e.g. "did wanting to maximize own outcome play a role in making your offer?" and "did earning as much money as possible play a role in making your offer?" (1 = absolutely no role, 7 = absolutely a large role). We combined these questions into a self-interest scale ($\alpha = .91$) ranging from 1 to 7 with higher scores indicating more self-interest. To measure fairness motivations three questions were asked: "Did wanting to divide the chips equally play a role in making your offer? (1 = absolutely no role, 7 = absolutely a big role)"; "How inappropriate was it to financially disadvantage Person B? (1 = not at all inappropriate, 7 = very inappropriate); and "To what extent was it your moral duty to come to a fair allocation? (1 = not my moral duty, 7 = very much my moral

duty). We combined these questions into a fairness motivation scale ($\alpha = .74$) ranging from 1 to 7 with higher scores indicating higher fairness.

At the end of the experiment participants were asked several questions to check our manipulations. They were debriefed and paid 6.50 Euro. All participants agreed to this procedure.

Results

Manipulation checks. Our manipulation of valence was successful. A 2 (valence: positive vs. negative) x 2 (dependency: high vs. low) ANOVA on “did you have to bargain about chips you had to pay?” (1 = absolutely not true, 7 = absolutely true) showed that participants in the negative UBG agreed more to this statement ($M = 5.47$, $SD = 1.91$) than participants in the positive UBG ($M = 2.45$, $SD = 1.82$), $F(1,96) = 64.48$, $p < .001$, $\eta^2 = .41$. A 2 (valence: positive vs. negative) x 2 (dependency: high vs. low) ANOVA on the question “did you have to bargain about chips that could be gained?” (1 = absolutely not true, 7 = absolutely true) yielded also only a significant main effect of valence, $F(1,96) = 95.24$, $p < .001$, $\eta^2 = .50$. Participants in the positive UBG agreed more to this statement ($M = 6.29$, $SD = 1.15$) than participants in the negative UBG ($M = 3.18$, $SD = 1.98$).

Our manipulation of dependency was also successful. Ninety percent of the participants correctly indicated the percentages they and Person B would earn when B would reject the offer. There were no differences between conditions. Exclusion of the participants who did not correctly indicate the percentages did not yield different results on the dependent variables and were therefore included in the rest of the analyses. A test of the effectiveness of the dependency manipulation was also successful. A 2 (valence:

positive vs. negative) \times 2 (dependency: high vs. low) ANOVA on this dependency scale indicated only a significant main effect of dependency, $F(1,66) = 221.33, p < .001, \eta^2 = .77$.¹ Participants in the high dependency condition indicated to be more dependent of the recipient ($M = 5.64, SD = .98$) than participants in the low dependency condition ($M = 2.46, SD = .78$).

Offers. To analyze the offers, we used the number of chips allocated to the recipient (i.e. in the negative valence UBG 100 chips minus the offer). A 2 (valence: positive vs. negative) \times 2 (dependency: high vs. low) ANOVA on this offer yielded a significant main effect of dependency, $F(1,96) = 5.71, p < .05, \eta^2 = .06$. Participants in the low dependency condition allocated less chips to recipients ($M = 40.05, SD = 16.76$) than participants in the high dependency condition ($M = 46.16, SD = 13.13$). This main effect was qualified by a significant interaction effect of valence and dependency, $F(1,96) = 5.40, p < .05, \eta^2 = .05$. The mean allocations of the four conditions are shown in Figure 1.

Specific analyses shows that in line with our predictions, the dependency effect was only significant in the positive valence UBG, $F(1,96) = 11.33, p < .001, \eta^2 = .11$. Participants in the low dependency condition allocated less chips to the recipient ($M = 33.73, SD = 18.62$) than participants in the high dependency condition ($M = 47.44, SD = 10.92$). The dependency effect was not significant within the negative valence UBG, $F(1,96) < 1, ns, M_{\text{high dependency}} = 46.24 (SD = 15.24)$ and $M_{\text{low dependency}} = 46.04 (SD = 11.79)$. Alternatively, the valence effect was only significant within the low dependency condition, $F(1,96) = 8.94, p < .005, \eta^2 = .09$, and not significant in the high dependency condition, $F(1,96) < 1, ns$.

Self-interest and fairness motivations. A 2 (valence: positive vs. negative) x 2 (dependency: high vs. low) ANOVA on the self-interest scale yielded only a significant main effect of valence, $F(1,95) = 7.94, p < .01, \eta^2 = .08$. Participants in the positive UBG indicated that they were more influenced by self-interest ($M = 4.56, SD = 1.96$) than did participants in the negative UBG ($M = 3.45, SD = 1.99$).

A 2 (valence: positive vs. negative) x 2 (dependency: high vs. low) ANOVA on the fairness scale also yielded only a significant main effect of valence, $F(1,96) = 12.00, p < .001, \eta^2 = .11$. Participants in the positive UBG indicated to be less influenced by fairness ($M = 4.38, SD = 1.50$) than did participants in the negative UBG ($M = 5.39, SD = 1.40$).

To investigate whether these motivations of self-interest and fairness mediated the effect of valence in the low dependency condition (i.e. the interaction effect), we conducted mediated moderation analyses with a dummy-coded independent variable, i.e. valence, and moderator, i.e. dependency (cf. Muller, Judd, & Yzerbyt, 2005). By subtracting the self-interest scale from the fairness scale we combined these two scales (with a correlation of $r = -.67, p = .001$) into a scale indicating the relative importance of self-interest and fairness.² Positive scores indicate a greater influence of fairness than self-interest and negative scores indicate a greater influence of self-interest than fairness. First, we analyzed the effect of valence, dependency (the moderator) and their interaction on the offer, which yielded a significant main effect of dependency, $\beta = .23, p < .05$, and a significant interaction effect, $\beta = -.22, p < .05$. Second we analyzed the effect of valence, dependency and their interaction on the relative motive scale (centralized), which yielded only an effect of valence, $\beta = -.32, p < .001$. Third, we performed a

regression with valence, dependency, their interaction, the relative motive scale (mediator) and the interaction between the relative motive scale and dependency on the offer. This analysis yielded significant main effects of dependency, $\beta = .26, p < .01$, relative motive scale, $\beta = .38, p < .001$, and a significant interaction effect of dependency and the relative motive, $\beta = -.27, p < .01$. The interaction effect of valence and dependency disappeared, $\beta = -.14, ns$. These results suggest mediated moderation in that the valence of the UBG changed the relative importance of fairness and self-interest, which in turn moderated the effect of dependency on the offer. Specific regression analyses within the low dependency condition indeed showed that this mediation was significant, Sobel $z = 2.01, p < .05$.³

Discussion

The results of Experiments 3 support our findings in Experiment 1 and 2, and again provide support for the do-no-harm principle. We showed that valence of the UBG moderated the dependency effect. In the positive UBG allocators who were less dependent upon the recipient's behavior made lower allocations to recipients than allocators who were highly dependent. This finding replicates previous research on the strategic effect of dependency in ultimatum bargaining (e.g. Fellner & Güth, 2003; Suleiman, 1996). However, in the negative valence UBG allocators made (almost) equal offers to the recipient, irrespective of their dependency situation. Results on the fairness and self-interest motives suggested that indeed allocators in the negative valence UBG were less influenced by self-interest and more by fairness than allocators in the positive valence UBG.

The use of a dependency manipulation helped to shed light on the motives driving the behavior. Previous research demonstrated that allocators who are highly dependent upon the recipient's behavior and propose an equal split may be driven to do so for two reasons: 1) they exhibit a genuine concern for other, or 2) they do so out of strategic concerns to maximize own outcomes. Using the dependency manipulation provided us an efficient way to conclude that the (almost) equal offer in the positive valence UBG in case of high dependency was driven out of strategic concerns for the own outcome whereas the (almost) equal split in the negative valence UBG was driven by a genuine concern for the recipient.

General Discussion

In three experiments we systematically studied the influence of valence in bargaining on three aspects: accessibility, norms, and behavior. In Experiment 1 we showed that fairness was more accessible in the negative valence UBG than in the positive valence UBG. In Experiment 2 we showed that the fairness norm was stronger in the negatively valenced UBG than in the positive UBG. Finally, in Experiment 3 we found an interaction effect of valence and dependency showing that compared to allocators in the positive UBG, allocators in the negative UBG always made (nearly) equal offers even when being less dependent on the recipient's behavior.

When comparing the findings of Experiment 2 and Experiment 3, it is interesting to see that our manipulation of dependency did affect behavior (Experiment 3) but not feelings of appropriateness of making unequal offers (Experiment 2). These results illustrate that indeed norms and behavior need not necessarily correspond. This was clearly the case in the positive valence UBG, in which dependency did not influence the

fairness norm, but did influence the behavior. Allocators who were less dependent made lower offers to the recipient than allocators who were highly dependent. In the positive valence UBG, norms did not change in different dependency situations, but behavior did. This finding extends research on dependency relations in bargaining. It is, however, at the same time highly relevant to note that in the negative valence domain, norms and behavior did match. The fairness norm and the behavior were not affected by our dependency manipulation.

Together, this suggests that individuals are driven by the do-no-harm principle (Baron, 1995, 1996; Van Beest, Wilke, & Van Dijk, 2003; Van Beest et al., 2005), which states that people are reluctant to harm one party to benefit another one. We argued that people consider inflicting a loss to the other party as more harmful than withholding a gain and are therefore less motivated to maximize their own outcomes in a negatively valenced bargaining. This conclusion is further supported by our mediation analyses in Experiment 3. The moderating effect of valence on the relation between dependency and the offer was mediated by the relative importance of the motives of self-interest and fairness. Allocators in the negative valence UBG were less influenced by self-interest and more by fairness than allocators in the positive valence UBG.

At this point it may be relevant to compare our results to a study by Buchan et al. (2005) who studied the influence of outcome valence on behavior in the standard UBG. Buchan et al. (2005) observed that allocators made higher offers in the loss UBG. In their discussion, they suggested that this effect might be explained in terms of a higher fear of rejection in the loss UBG. They suggested that allocators might reason that recipients in the loss UBG would have higher demands in the loss UBG. To avoid rejection of their

offer, allocators would therefore be motivated to meet these high demands and make higher offers. This ‘fear of rejection’ explanation was not tested, however. By investigating fairness accessibility, norms, and behavior (and the underlying processes), the current studies do allow for such a test. Our findings speak more towards a fairness explanation, an explanation not considered by Buchan and colleagues. First of all, this explanation of Buchan and colleagues does not incorporate the idea of fairness accessibility and norms. Second, the results of Experiment 3 are especially informative, because they suggest that fear of rejection cannot explain the higher offers in the negative valence UBG. Even when the consequences of a rejection were not severe (i.e. when allocators were less dependent) allocators proposed an (almost) equal offer. Our data also show that allocators in the negative valence UBG were less influenced by motivations of self-interest and more by fairness than allocators in the positive valence UBG. Thus – on all three aspects of the bargaining process – the current experiments provide a different account for the higher offers in the negatively valenced UBG. These are all in favor more of the do-no-harm principle than fear of rejection or strategic self-interest.

These results shed a new light on previous conclusions on ultimatum bargaining behavior. Some research on UBG suggested that equal offers may not (always) be the result of true fairness, but the result of strategic self-interest (e.g. Fellner & Güth, 2003; Kagel, Kim & Moser, 1996; Pillutla & Murnighan, 2003; Suleiman, 1996). Our research suggests that valence may be an important moderating factor that influences the motivation of the allocator. More specifically, our results demonstrate that in bargaining situations involving negatively valenced payoffs, proposed equal allocations may be driven more by fairness than self-interest. By presenting the bargaining in a negative

payoff frame we show that people are reluctant to decrease the payoffs of others to increase their own.

If we put our study into a broader theoretical context, our results fit very well in the appropriateness framework (March, 1994; Messick, 1999; Weber, Kopelman, & Messick, 2004). According to this framework people evaluate a situation in terms of appropriateness. What is appropriate behavior and how should I behave? The current study shows that a situation involving the allocation of negative versus positive valences is more likely to elicit fairness concepts (Experiment 1), more likely to result in assessments that an unequal offer benefiting the allocator is inappropriate (Experiment 2) and more likely to elicit behavior that is fair (Experiment 3). The appropriateness framework also acknowledges that personality characteristics can influence what individuals find appropriate. In future research on the influence of valence on bargaining, the interplay of these personality characteristics and valence could be studied. For example, previous research on (positive payoff) ultimatum bargaining suggested that social value orientation influenced the behavior and motives of allocators (Van Dijk et al., 2004). Research on social value orientation suggests that people have a relatively stable tendency to make decisions in interpersonal situations where own and other payoffs are at stake (Messick & McClintock, 1968; Van Lange, 1999; Van Lange, De Cremer, Van Dijk, & Van Vugt, 2007). Research on how social value orientation might influence fairness accessibility, norms and behavior in positive and negative valence UBG could extend our current study on outcome valence, and also extend the work of the appropriateness framework. Clearly this research was beyond the scope of the current

paper, but might be an interesting continuation of the research on the influence of outcome valence on bargaining.

Another way of looking at our results is to compare our findings with previous research on outcome valence. The current results are in line with research on coalition formation (Van Beest et al., 2003; 2005) which showed that people are less willing to exclude other people when this implies inflicting a loss to this other party than when it implies withholding a gain. Within a coalition, valence did not affect the division of the resource. We studied the influence of valence in a setting in which exclusion could not play a role. Our results show that people in a dyadic bargaining situation are less willing to make low offers to the other party when bargaining over negative outcomes than when bargaining over positive outcomes because in these situations, fairness concerns dominate over self-interest.

Moreover, the current results may be compared to ingroup favoritism research (Mummendey, et al., 1992; Mummendey & Otten, 1998; Otten & Mummendey, 1999). This research shows that there is less ingroup favoritism when allocating negative resources than allocating positive resources. Mummendey *et al.* explain this valence effect by using a cognitive-normative perspective. Because people tend to process information more thoroughly in a negative frame than in a positive frame, they better realize in the negative frame that there are no justifiable reasons to favor the ingroup. Consequently, people in the negative domain perceive that favoring themselves at the cost of the outgroup is not appropriate, and therefore people in a negative domain do not show ingroup favoritism.

Our results are in line with Mummendey et al.'s researching, demonstrating that what people perceive as appropriate behavior differs between positive and negative valence bargaining and that valence has effects on a cognitive level (i.e., fairness accessibility). An important difference, however, is that we studied how people allocate positive or negative resources, and to what extent self-interest and fairness motivate the bargainers. We thus studied the influence of valence in interpersonal settings, in which ingroup favoritism cannot play a role, and for which social identity theory cannot account for self-favoring behavior. Put differently, the observed self-interest in the positive UBG cannot be explained in terms of social categorization. By using additional measures and the dependency manipulation to study the underlying processes, we are able to explain our valence effect in terms of the do-no-harm principle (Baron, 1995; 1996), which suggests that we do not want to harm someone else to benefit ourselves. As it is clear that in the negative UBG one can administer a loss to the other person, whereas in the positive domain one can withhold a gain, being self-interested is considered more harmful in the negative domain than in the positive domain.

Another issue to consider is how pervasive the effects of fairness accessibility will be. In the current studies, we revealed the immediate effects of fairness accessibility by showing that when distributing negative outcomes, the fairness norm becomes more accessible, and people feel it is more appropriate to distribute negative outcomes equally. In this sense, one could argue that in our studies accessibility and appropriateness were closely related because they both pertained to the same situation. It is, however, possible to think of situations where the connection between accessibility and normative appropriateness would be more indirect. An interesting issue for future research would,

for example, be to investigate whether fairness accessibility might also have effects that go beyond the immediate distribution at hand. It is conceivable that increased fairness accessibility will even impact on other (e.g., subsequent) allocations in a different domain (see for a similar reasoning regarding effects of valence on general norm enhancement e.g. Wenzel & Mummendey, 1996). If so, this would certainly add to the claim that accessibility and normative appropriateness should be considered as two distinct aspects.

Our findings provide new insights that differ from insights in the domain of multi-issue negotiation (e.g. Bazerman, Maggliozi, & Neale, 1985; De Dreu, Carnevale, Emans, & Van der Vliert, 1994; De Dreu et al., 1995; Neale, Hubert, & Northcraft, 1987). This research showed that in comparison with positively framed negotiations, negotiators demanded more and conceded less in negatively framed negotiations. A plausible explanation for this observed difference might be that in multi-issue negotiation people are less aware of the consequences of their own behavior upon the outcome of the other. More specifically, they do not know the payoff schedule of the other negotiator. Not knowing the outcomes for the other might in turn reduce the concern for the other. In the current research, and also in the research on coalition formation and ingroup favoritism, allocators explicitly knew these consequences. They knew exactly to what extent an unequal distribution would disadvantage the other party by either inflicting a loss, or withholding a gain. Knowing these consequences may consequently facilitate the concern for the other party. Implicitly or explicitly knowing the consequences of one's own behavior on the other's outcome might therefore explain the different results. Social identity research on the valence effect on ingroup bias shows some support for this reasoning (Otten & Mummendey, 1996). Compared to the situation in which people only

had to indicate what their own group would get (making the outcomes for the other group less salient, but still known), the valence effect disappeared when both own and other group's outcome was made explicit. Future research investigating the impact of salience of the other party on our findings might be useful in furthering our knowledge on the influence of positive and negative outcomes in negotiation.

Future research could also address the more practical implications of our study, e.g. by investigating how these findings may be used to promote concern for others. For example, the current findings suggest that individuals in an organization are more self-interested, and less concerned with others, when they are faced with positively-valenced outcomes. If an organization desires employees or departments to move out of their self-protective silos, framing situations in negative terms -- such as losses from a departmental sales quota -- may be a useful tool for doing so. Provided people have full knowledge of the consequences of their decisions to others, they should be able to make fair and equal distributions. The current results suggest that in order to increase the concern for others in bargaining, one should present the bargaining in terms of negative payoffs.

Conclusion

In sum, our research focused on comparing a negative payoff bargaining situation to the more often studied positive payoff bargaining situation. We did not only study behavior, but systematically investigated the role of outcome valence on fairness accessibility, norms, and behavior and the underlying motives. Doing so revealed that by framing a bargaining situation in negative terms people are more motivated by fairness concerns.

Footnotes

¹ Due to a failure in saving the data, we only saved the data of 70 participants for this scale. Still, the effect was already very strong. Combined with the answers to the open questions, we believe our manipulation of dependency was successful.

² Although our main focus was to understand the influence of valence on the relative importance of fairness and self-interest, we also studied the mediating effect of fairness and self-interest separately. We analyzed the effect of valence, dependency and their interaction on the self-interest scale, which yielded only an effect of valence, $\beta = -.28, p < .01$. Then, we performed a regression with valence, dependency, their interaction, the self-interest scale (mediator) and the interaction between the self-interest scale and dependency on the offer. This analysis yielded significant main effects of dependency, $\beta = .27, p < .01$, self-interest, $\beta = -.31, p < .001$, and a significant interaction effect of dependency and self-interest, $\beta = .34, p < .001$. The interaction effect of valence and dependency was no longer significant, $\beta = -.15, ns$. These results show that self-interest mediated the effect of valence on the offer within the low dependency condition, (analyses within the low dependency condition yielded a Sobel $z = 1.90, p = .057$). Similarly, we analyzed the mediating role of fairness. Although valence significantly influenced fairness, $\beta = .33, p < .001$, in the third step of the mediation analysis we did not find a significant interaction effect of dependency and fairness on the offer, $\beta = -.15, ns$. However, the significance of the interaction of dependency and valence decreased, $\beta = -.20, p = .035$. Separate analysis within the low dependency condition yielded a (marginally) significant full mediation of the valence effect by fairness, Sobel $z = 1.79, p = .074$, suggesting that fairness motivations also (partially) mediated our valence by

dependency interaction. In sum, both fairness and self-interest contributed independently of each other to the valence effect on the offer.

³ A regression of valence on the offer (within the low dependency condition) yielded a significant effect, $\beta = .37$, $t = 2.77$, $p < .01$. A regression of valence on the relative motive scale yielded a significant effect, $\beta = .30$, $t = 2.16$, $p < .05$. A regression of valence and the relative motive scale on the offer yielded a significant relative motive effect, $\beta = .60$, $t = 5.33$, $p < .001$. The effect of valence was no longer significant, $\beta = .19$, $t = 1.72$, *ns*.

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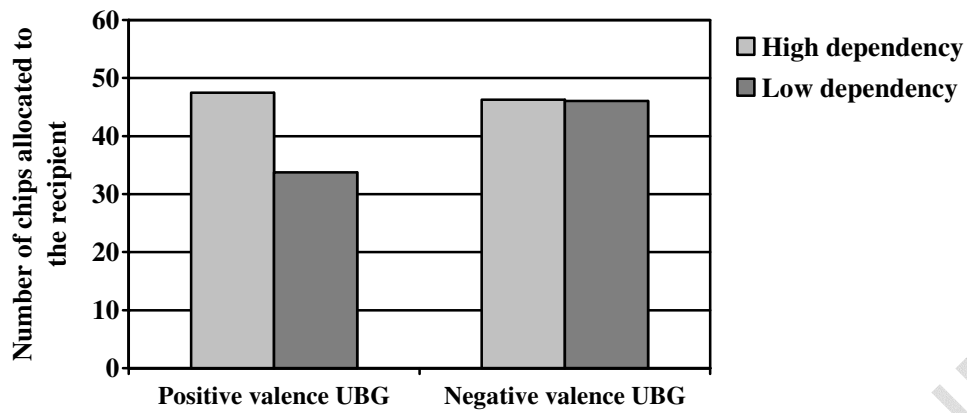


Figure 1. Number of chips allocated to the recipient as a function of valence and dependency (Experiment 3).